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van den Brink, G.; van Eyghen, H.M.R.A.; Peels, R.

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Chapter 11
Cognitive Science of Religion and the Cognitive Consequences of Sin

Rik Peels, Hans van Eyghen, and Gijsbert van den Brink

Abstract This paper explores the relation between evolutionary explanations of religious belief and a core idea in both classical Christian theology and (among other philosophical streams of thought) Reformed Epistemology, namely that humans have fallen into sin. In particular, it challenges the claim made by De Cruz and De Smedt (2012) that '(..) in the light of current evolutionary and cognitive theories, the Reformed epistemological view of NES [the noetic effects of sin] is in need of revision.' Three possible solutions to this conundrum are examined, two of which are shown to be plausible.

11.1 Introduction

The cognitive science of religion is an academic field that provides a wide variety of natural explanations of religious belief, including various evolutionary explanations. We shall discuss a few of those evolutionary explanations in more detail below. This paper explores the relation between those explanations and a core idea in classical Christian theology as well as (among other philosophical streams of thought) in Reformed Epistemology, namely that humans have fallen into sin. The idea is that sin has certain *cognitive* consequences, in addition to affective and existential ones, even though these are all interwoven. In particular, sin is believed to have diminished and distorted human knowledge of God.

This is an important topic, for, recently, a few authors in the cognitive science of religion, in particular Helen De Cruz and Johan De Smedt, have suggested that some theories in the cognitive science of religion are incompatible or at least in

R. Peels (✉) · H. van Eyghen · G. van den Brink
Vrije Universiteit Amsterdam, Amsterdam, The Netherlands
e-mail: mail@rikpeels.nl; g.vanden.brink@vu.nl

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tension with the idea that sin has somehow diminished and distorted our human knowledge of God. According to them, it is problematic to claim that certain evolutionary explanations of religious belief are correct *and* that sin has such cognitive consequences. Therefore, they argue that '(..) in the light of current evolutionary and cognitive theories, the Reformed epistemological view of NES [the noetic or cognitive effects of sin] is in need of revision' (De Cruz and De Smedt 2012, 63).

Previous authors have explored how evolutionary explanations of religious belief relate to the rationality of religious (or Christian) belief in general.[1] In this paper, however, our focus is on this much more specific question how evolutionary explanations of religious belief relate to the idea that sin has (had) certain cognitive consequences for human knowledge of God and the good. We will explore whether the argument for incompatibility or at least tension (De Cruz and De Smedt use both concepts) is convincing and, if not, how evolutionary explanations of religious belief and the cognitive consequences of sin might relate to each other.

The chapter is structured as follows. First, we offer some terminological clarifications and define the main concepts and phrases that figure in this debate, such as 'sin', 'cognitive consequences of sin', the 'Fall', and 'evolutionary explanations of religious belief' (Sect. 11.2). After that, we spell out the argument developed by De Smedt and De Cruz against an historical Fall (Sect. 11.3). Next, we pause a moment in order to ponder exactly what is at stake here (Sect. 11.4). In the ensuing sections, we discuss three possible solutions as to how evolutionary explanations of religious belief can be wedded to an historical account of the Fall (Sects. 11.5, 11.6 and 11.7) before we draw our conclusion (Sect. 11.8).

11.2 Preliminaries

Let us start with a bit of terminological clarification.

First, we use the phrases 'noetic effects of sin' and 'cognitive consequences of sin' interchangeably, as do many in the literature (cf. Peels 2010, 2011; Plantinga 2000). However, how should we define the concept of 'sin'? De Cruz and De Smedt unpack it in the following way:

> The traditional theological concept of sin, as developed by Augustine and affirmed in, amongst others, the Augsburg confession has four key elements: (1) adult humans actually sin, (2) humans have, from birth, a proneness to sin that they inherit biologically, (3) the origin of this biologically transmitted propensity is the first sin (original sin), committed by the earliest humans, (4) the state of the first humans, prior to their sin, was one of perfection (original righteousness), a state from which they fell" (2012, 60).

This all seems right to us, but it does not yet define the word 'sin' (nor is it intended to do so). For one thing, the *definiendum* recurs in the definiens. Following a longstanding tradition, we propose to split up the concept into two closely related but distinctive notions: *actual* sin and *original* sin. Following the consensus view of

[1] See for example (Clark and Barrett 2010, 2011; Wilkins and Griffiths 2013). Justin McBrayer (Chap. 9), Matthew Braddock (Chap. 10) and Robert Nola (Chap. 5) also address this topic in this volume.

the Christian tradition, by 'actual sin' we mean an act – as well as an omission or even a (willful) desire – that is morally wrong and contrary to God's will.[2] According to most Christian traditions (one notable exception is the Pelagian concept of sin), however, sin is not only an act but also a state of affairs that is characterized by an *inclination* towards sinning. This state of affairs is often called *original sin* – a notion that in turn comprises a couple of closely related but distinguishable assumptions. Even though, given certain doctrinal varieties within the Christian tradition, it is hard to give a uniform description of how the notion of original sin should be spelled out, we can distinguish six elements that are often associated with it in classical expressions of the doctrine (cf. Van den Brink 2018):

1. All human beings are sinful, that is, they sometimes commit acts that go against God's will.
2. All human beings have a tendency or inclination towards sinning from the beginning of their lives.
3. The tendency towards sinning is not restricted to particular domains of human life, such as the body or our emotions, but affects all our faculties.
4. The tendency towards sinning is the well from which all sorts of actual sins spring.
5. The tendency towards sinning is not part of our original make-up but a result of the first sin that took place at the dawn of human history. So it is, basically, a corruption.
6. This corruption is passed on to all later generations through sexual reproduction.

Quite often, a seventh element can also be distinguished, which says that apart from this corruption, although not in isolation from it, also the *guilt* of the first sin is passed on, or imputed, to all later generations; therefore, all human beings, infants included, deserve God's judgment even when they have not yet committed actual sins. Since this is quite controversial within contemporary theology, we focus on 1–6.

Summing it up: original sin is our (1) universal, (2) radical, (3) total, (4) effective, (5) acquired, and (6) inherited inclination towards sinning. In various Christian traditions some of these aspects are highlighted more than others. For example, Protestants, especially Reformed ones, often emphasize (4), whereas for traditional Roman Catholics (6) is key. In this paper, we do not take a stance on which of these elements is more important, if that is the case at all, nor on the question which of the six assumptions are actually true. Rather, we consider which of them are at stake in the evolutionary argument against the cognitive consequences of sin, and to what extent they are retained (or restored) by the various solutions we discuss. One more clarification with regard to sin: the notion of original sin is indissolubly linked up with that of an historical *fall* into sin as a result of the first sin ever committed by a

[2] We do *not* need to take a stance on the so-called Euthyphro-dilemma here, which asks whether a sinful act is morally wrong because it goes against God's will or whether it goes against God's will because it is morally wrong.

human being. It is this Fall (often written with capital F so as to highlight its momentous character) in particular which allegedly had noetic effects for all human beings, including a severely damaged understanding of God.

Having introduced the concept of sin, we now move on to explicate what we mean by 'the consequences of sin'. This phrase is hard to define, but something in the neighborhood of a counterfactual formulation should do: the cognitive consequences of sin are certain actual states of affairs that are themselves morally wrong and that would *not* have been actualized if there had been no sin. In the traditional (pre-evolutionary) Christian worldview, human physical death took pride of place as the primary consequence of sin. A related consequence of sin that has often been discerned is the so-called 'cosmic Fall'—the falling into disarray of the originally harmonious relationships between humans, animals and the entire ecosphere.

In this paper, however, we are particularly interested in one special type of consequences of sin, viz. *cognitive* or *noetic* ones. Hereby, we mean effects of sin on our *knowledge* and *beliefs*. The idea is that, as a result of the fact that they started to sin, our first human ancestors became subject to various epistemic deficiencies: false and irrational beliefs, ignorance where knowledge had been in place, unreliable (or even lost) doxastic mechanisms, cognitive biases, and so on. These deficiencies in particular affected our human (a) knowledge of God and (b) knowledge of good and evil (cf. e.g. Heppe 1978, loc. XV 34; Kuyper 1898, §43).

The phrases 'cognitive consequences of sin' and 'noetic effects of sin' may seem confusing, since, arguably, these consequences and effects are *themselves* also sinful. However, since we lack control over these deficient cognitive states, they rightly count as sinful *consequences* rather than sinful *acts* themselves. We are nonetheless responsible for them, because we are derivatively responsible for our beliefs (for a full-fledged theory of derivative responsibility for belief, see Nottelmann 2007 and Peels 2017).

Finally, what are *evolutionary explanations* of religious belief? We take these to be explanations of religious belief (especially belief in gods) in terms of its adaptive advantages or in terms of it being an evolutionary byproduct. These explanations are drawn from Cognitive Science of Religion (CSR).[3] Not all CSR-theories give evolutionary explanations of religious belief. We give examples of theories that do below.

11.3 The Evolutionary Argument Against the Cognitive Consequences of Sin

De Cruz and De Smedt claim that there is a tension between what they call the 'traditional account' of the cognitive effects of sin and what we learn from evolutionary theories of religion. They take Alvin Plantinga's account as an exemplar of the traditional account of the cognitive consequences of sin. Says Plantinga:

[3] For an overview of CSR, see e.g. Claire White's paper in this volume.

> This [viz. the sort of blindness that comes with original sin] is a cognitive limitation that first of all prevents its victim from proper knowledge of God and his beauty, glory, and love; it also prevents him from seeing what is worth loving and what worth hating, what should be sought and what eschewed. It therefore compromises both knowledge of fact and knowledge of value. (Plantinga 2000: 207-08)

Although the quote covers a broader domain, De Cruz and De Smedt's argument does not address the cognitive effects of sin *in total* but cognitive effects of sin with respect to *knowledge of God*. De Cruz and De Smedt add that on the traditional account, sin not only leads to incomplete knowledge of God but also to false religious beliefs. They refer to Justin Barrett who, in an attempt to reconcile evolutionary theories of religion and Plantinga's Reformed Epistemology, attributed the occurrence of false god-beliefs to human error. De Cruz and De Smedt interpret this error as a crucial consequence of sin. As we saw, on our account sin and its (cognitive) effects follow up on a first ('original') sin committed by the earliest humans. Prior to this first sin, humans allegedly lived in a state of perfection without any (cognitive) defects resulting from sin (De Cruz and De Smedt 2012, 60).

When discussing the traditional account, De Cruz and De Smedt stress the historical aspect of the Fall. They claim that this aspect in particular distinguishes the traditional account from an alternative account in which humanity did not begin in a state of perfection but in a state of immaturity, i.e. of not being fully developed.[4] They note that on this alternative account the entrance of sin need not be seen as an historical event, since sin can be considered as a tendency to be morally and cognitively off-track that we had all along (De Cruz and De Smedt 2012, 61). In this scenario, there are no cognitive consequences of (original) sin – no noetic limitations, that is, that popped up after humans started to sin. Therefore, De Cruz and De Smedt question the 'Cognitive Consequences of Sin' thesis, which can be defined as follows:

> Cognitive Consequences of Sin: Humans have cognitive limitations resulting from the historical Fall into sin that prevent them from attaining proper knowledge of God and that make them prone to hold false god-beliefs.

De Cruz and De Smedt note that there appears to be a parallel to the Cognitive Consequences of Sin in evolutionary theories of religion. They call this the 'Noetic Effects of Evolution'. The thesis that there are noetic or cognitive effects of evolution can be unpacked as follows:

> Noetic Effects of Evolution: Humans have unwarranted basic beliefs that arise from the normal and proper functioning of human cognitive adaptations. (De Cruz and De Smedt 2012, 54)

This statement concerns human cognition in general and not cognition in the domain of religion specifically. Moreover, the statement concerns the outputs of the noetic effects of evolution rather than evolution's effect on the human cognitive *apparatus*.[5]

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[4] Following an older line of theological research, De Cruz and De Smedt view Irenaeus of Lyon as the main exemplar of this alternative view (cf. Hick 1966, part III).

[5] De Cruz and De Smedt use the concept of warrant (in 'unwarranted') because they consider their argument as a challenge to (part of) Plantinga's warrant epistemology.

To make a comparison with the Cognitive Consequences of Sin easier, for the purposes of this paper, the Noetic Effects of Evolution thesis can be reformulated as follows:

> Noetic Effects of Evolution*: Humans have cognitive limitations resulting from evolutionary pressures that prevent them from attaining proper knowledge of God and make them prone to hold false god-beliefs.

The cognitive limitations in question are described by theories in CSR. De Cruz and De Smedt give two examples. On the first theory, belief in supernatural agents, such as gods, is argued to be an adaptation that fostered cooperation among people.[6] Belief in a supernatural being who watches people, cares about their behaviors, and punishes or rewards them according to that behavior can diminish the prevalence of free-riders. Free-riders are individuals that reap the benefits of cooperation but do not contribute much or even anything themselves (De Cruz and De Smedt 2012).[7] The second theory De Cruz and De Smedt refer to was first defended by Stewart Guthrie and further elaborated by Justin Barrett. They argued that belief in supernatural beings results from a proneness to over-detect agents. Limited or ambiguous evidence, like the rustling of leaves or gurgling of water, is argued to suffice for forming beliefs that agents are around. Once these beliefs are formed, only a small step is needed to arrive at beliefs in invisible agents and supernatural beings (De Cruz and De Smedt 2012).[8]

De Cruz and De Smedt conclude that in both theories humans are prone to hold false god-beliefs. The first theory De Cruz and De Smedt discuss, the one on which supernatural agents foster cooperation, suggests that people can easily form beliefs about ancestor spirits or gods that mainly punish people. The second, based on the idea of agency detection, suggests that non-Christian beliefs will be formed more easily than Christian beliefs. Belief in invisible agents that cause leaves to rustle or water to gurgle fits more easily in an animistic anthropomorphic belief-system than in a Christian one.

One might think that the Cognitive Consequences of Sin and the Noetic Effects of Evolution are perfectly compatible. After all, both posit a tendency to form false god-beliefs that is deeply rooted in the human cognitive apparatus. Nonetheless, De Cruz and De Smedt argue that these effects of evolution render the idea that sin has cognitive consequences, as spelled out above, unlikely. They claim that the theories

[6] In fact, there are two theories that explain religious beliefs by pointing to their effects on cooperation. One finds their adaptive use in biological evolution and argues that belief in most or all supernatural beings fosters cooperation. Another, called the Big Gods Theory, places their use in cultural evolution. Here, not all supernatural beings foster cooperation but only a subclass does, viz. 'big gods' which transcend the scope of particular tribes. During the neolithical revolution societies with such big gods outcompeted societies with smaller gods because believing in big gods allowed for living in larger communities.

[7] De Cruz and De Smedt cite (Sosis and Alcorta 2003) and (Bering 2012) as the main defenders of this theory.

[8] De Cruz and De Smedt cite (Guthrie 1993) and Barrett (2009) as defenders of this theory.

do not fit well with the idea of an historical Fall prior to which there were no false gods-beliefs. They give three arguments for this claim.

First, they argue that there is no empirical evidence for an initial (cognitively) perfect state prior to the Fall in which humans only formed correct god-beliefs.

Second, they claim that there is empirical evidence for the opposite claim, namely that monotheistic god-beliefs are a recent phenomenon and that earlier humans had false god-beliefs. They refer to evidence that monotheism came fairly recent in human history. Only in large-scale societies that emerged during the past 10.000 years did monotheistic beliefs emerge (De Cruz and De Smedt 2012, 59).

Third, if we shift our attention from the religious to the moral domain, we see evidence for an evolution from moral corruption to moral improvement. The empirical evidence shows that humans are more peaceful than the species that is most closely related to them, namely the chimpanzee. If humans shared an evolutionary history with chimpanzees, it is unlikely that ancient humans were ever in a state of moral perfection. The evidence shows that at the very least many sinful tendencies are also present in apes, which makes it unlikely that these tendencies are the result of one single human event (De Cruz and De Smedt 2012, 60). They also refer to evidence that early hominids showed signs of aggression. Grant McCall and Nancy Shields note that some skeletal remains of Neanderthals were damaged. While the damage could also have resulted from animal encounters during hunting, some of it was more likely caused by interpersonal violence. They also note that there is some evidence for cannibalism in skeletons of Homo Erectus but add that the damage could also have been done postmortem by animals. A final piece of evidence McCall and Shields note is the increased number of skeletons with evidence for trauma caused by violence since 10,000 years ago. They claim that the increased number of skeletons is the result of early forms of warfare (McCall and Shields 2008).

According to De Cruz and De Smedt, all three arguments make an historical Fall unlikely. The first argument claims that there is no empirical evidence for an initial state where the human cognitive apparatus did not produce false god-beliefs. The second states that there is evidence that correct (i.e., presupposing the Christian faith tradition as we do in this paper) god-beliefs emerged only later in human history. This suggests an opposite evolution to the one we would expect had there been an historical Fall. If there was an historical Fall we would expect an evolution from correct god-beliefs to false ones. De Cruz and De Smedt refer to evidence for the contrary evolution, namely from false god-beliefs to correct ones. The third argument also refers to evidence for an opposite evolution, in this case from a more violent to a more peaceful life. Being less violent and more peaceful is clearly a morally better state, and hence the state we would expect before an historical Fall. If there had been an historical Fall, we would thus expect an evolution from a less violent to a more violent state.

Before we move on, we should note that De Cruz and De Smedt do not claim that the idea of the Cognitive Consequences of Sin is *metaphysically incompatible* with the idea of the Noetic Effects of Evolution. They write:

> So while (…) the Reformed concept of sin (i.e., the view that NES [noetic effects of sin] are a result of an historical first sinful act) is not metaphysically incompatible with evolutionary epistemology, it seems strained to maintain it. A more natural reading of the evolutionary and cognitive empirical evidence is that off-track beliefs are results of our evolutionary history." (De Cruz and De Smedt 2012, 63)

Thus, they seem to suggest that the empirical evidence does not logically rule out the idea of the Cognitive Consequences of Sin, but that it speaks in favor of the alternative account that does not need an historical Fall. Their argument is thus best construed as an inference to the best explanation: an alternative account provides a better explanation of the empirical data than does the idea of the Cognitive Consequences of Sin.

11.4 Interlude: What Is at Stake?

We pause a moment to elucidate what exactly is at stake here. Imagine that there is indeed a conflict between CSR and the traditional account of the Cognitive Consequences of Sin (or CCS for short). Then how should we respond? It should be noted that De Cruz and De Smedt's survey of CSR theories is far from exhaustive.[9] More importantly, however, we note that *no* theory in the Cognitive Science of Religion can be regarded as established. As Jonathan Jong, Christopher Kavanagh, and Aku Visala point out: "CSR's theories are still massively underdetermined by the data" (Jong et al. 2015). This goes to show that caution is needed when conclusions are drawn based on theories from the cognitive science of religion. There is also reason to be especially cautious when relying on Guthrie's and Barrett's theory. In a recent paper, Michiel van Elk and Neill van Leeuwen survey attempts at empirical confirmation of the theory and conclude that it only has ambiguous empirical support (Van Leeuwen and Van Elk forthcoming).[10]

Since there is no compelling empirical evidence for any of the theories in the Cognitive Science of Religion, therefore, it seems that if there is a conflict between CSR and CCS we may drop the one that seems most implausible to us. It is not necessarily the case that CCS should give way to CSR. However, let us investigate whether the theories in CSR are indeed in tension with CCS, and especially with the idea of an historic Fall. We see three possible solutions, which we will discuss below: (1) Evolution itself is a result of sin; (2) Humans have sinned from the outset and therefore suffer from the cognitive consequences of sin ever since they appeared on earth; (3) God, as a result of sin, has withdrawn his presence from humans.

[9] For a more complete overview, see (White, Chap. 3, this volume).

[10] They note that Guthrie's theory rarely incorporates good empirical evidence and claim that Barrett's theory lacks a detailed story about how agency detection experiences are connected to supernatural beliefs (Van Leeuwen and Van Elk, forthcoming).

11.5 Is Evolution Itself the Result of Sin?

A first attempt to solve the problem is to say that evolution itself is a result of sin. Something along these lines has been suggested by William Dembski:

> (…) to make us realize the full extent of human sin, God does not merely allow personal evils (…) to run their course subsequent to the Fall. In addition, God allows natural evils (e.g., death, predation, parasitism, disease, drought, floods, famines, earthquakes, and hurricanes) to run their course prior to the Fall. Thus, God himself wills the disordering of creation, making it defective on purpose. God wills the disordering of creation not merely as a matter of justice (…) but, even more significantly, as a matter of redemption (to bring humanity to its senses by making us realize the gravity of sin)" (Dembski 2009, 145)

Dembski's suggestion that God allowed natural evils from the outset can easily be expanded to include natural evil by means of biological evolution (like cognitive deficiencies). Thus, the evolutionary process was installed by God because he *foresaw* the Fall. Hence, sin can easily have all sorts of cognitive consequences, even though these have always been there.

Even more explicit on this point are Emil Brunner and Herman Bavinck. Brunner acknowledges *expressis verbis*, though, that what he has to say on this issue is a bit speculative:

> One final daring idea may be suggested, for which, however, there is no directly Scriptural basis, and we only venture to mention it here with great reserve.[11]

After this cautionary remark follows his actual suggestion:

> If then God knew beforehand that the Fall of man would take place, should not His creation of the world have taken *this* sort of man into account? [that is, sinful humanity; the authors] Is it unallowable to think that the Creator has created the world in such a way that it corresponds with sinful man? Is not a world in which, from the very beginning, from the first emergence of living creatures, there has been the struggle for existence, with all its suffering and its "cruelty", an arena suitable for sinful man? We cannot assert that this is so; still less have we any reason to say that this is not the case.[12]

And Bavinck says:

> (…) nature gradually became degraded and adulterated and brought forth thorns and thistles, all sorts of vermin, and carnivorous animals. (…) For God the fall was neither a surprise nor a disappointment. He anticipated it, incorporated it into his counsel, and already took account of it in creating the world. Creation, therefore, took place in such a way that, in case Adam as its head fell, the whole world could become as it is now. Prior to the fall, the state of humanity and of the earth as a whole was a provisional one that could not remain as it was. It was such that it could be raised to a higher glory but in the event of human transgression could also be subjected to futility and decay.[13]

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[11] Brunner 1952, 131.

[12] Brunner 1952, 131.

[13] Bavinck 2006, 181, 182. So according to Bavinck, natural evil (or what we, not he, would call the evolutionary process) was allowed or ordained by God because of his foreknowledge of the Fall, whereas the situation became worse *after* the Fall.

Although neither Brunner nor Bavinck explicitly mention the *cognitive* consequences of sin, their accounts can easily be extended so as to include these as well. Thus, the proposal says that God *foresaw* or at least *foreknew* the Fall of humankind and that, operating proactively, he installed an evolutionary process which all along included the cognitive consequences that would result from sin, including erroneous religious beliefs. If this idea is plausible, then, obviously, the idea of the Cognitive Consequences of Sin and the idea of the Noetic Effects of Evolution go together rather well: there is no tension between them, let alone an incompatibility.

However, there are at least two major problems with this solution of the problem. First, in order to make sense of this proposal, it seems we have to choose between two options. The first is to say that evolution is the *effect* or *result* of an historical Fall in the sense that that historical Fall has *caused* the evolutionary process. This implies that backward causation is possible and even actual, since there has been an evolutionary process long before any potential historical Fall of humans (at most, roughly, 200,000 years ago). The concept of backward causation, however, is widely considered to be deeply problematic, because metaphysically impossible (see, for instance, Ben-Yami 2007) The other option is to say that God *foreknew* that humans would sin and that, as a result of that foreknowledge, he decided to implement an evolutionary process. One worry is that it is not entirely clear how God could *foreknow* (foresee) this. After all, human beings came into existence *by way of that very evolutionary process*. Therefore, it seems one would have to say something like this: God has counterfactual knowledge of human free choices in the sense that he knows that humans will freely sin in a certain set of circumstances, whether this set of circumstances comes about by way of an evolutionary process or in some other way (e.g. by way of direct creation). Since God through this 'middle knowledge' knows that humans would sin in the relevant counterfactual circumstances, he has decided to implement an evolutionary process. The concept of middle knowledge and even its very possibility is highly controversial, though (see, for instance, Van Inwagen 1997), so the second option would come at a serious cost as well.

A second problem with this first solution is that, on this story, God allows human sin to determine the main way in which God creates the biodiversity and even to create human beings themselves. It is not surprising that sin has devastating effects. It *would* be highly problematic, though, if one of those effects was *the very process by which God creates all life on earth*. This seems to conflict with the doctrine, essential to Judaism, Christianity, and Islam, that creation – the existence of the cosmos, our planet, and life on earth in its many varieties – is in an important sense *God's* good work, primarily for his own delight, rather than a response to what some of his creatures would do.

It would, therefore, be preferable if we could find a solution to the problem that does not face these two worries.

11.6 (Un)Reliability and Restoration of the *Sensus Divinitatis*

A second route worth exploring embraces the view that there has neither been an historical Fall nor an historical isolated community – a community isolated from, say, death and suffering – but that all along humans have had a propensity to sin (original sin), have actually sinned (actual sins) and have cherished false god-beliefs (see below). Only when humans choose – by God's grace – to obey God, their *sensus divinitatis* gets the right input and learns to distinguish God's presence and work from false gods (spirits, etc.), so that the mechanism becomes reliable.[14]

The idea is that we are sinful and that the mechanism that produces belief in gods is unreliable, whereas when we start to obey God the mechanism is elevated to what it was intended for by God or how it was intended to function. This does *not* imply that there was some time at which it functioned that way—in fact, on this account there was no such time: the mechanism has always been unreliable and the reason that this has been so is that humans (and maybe also their predecessors, to the extent that they had the ability to make morally significant choices) have always chosen to sin. Still, the malfunctioning of the mechanism is a *consequence* of sin in the counterfactual sense that if humans had *not* chosen to sin (time and again), the mechanism would have been reliable.

Arguably, the propensity to sin (original sin on this account) is not something that is itself sinful, since we did not have control over or influence on it. We are not responsible for the fact that we have that propensity; it is not itself the consequence of a conscious act of rebellion or disobedience. (As we saw above, in Sect. 11.2, though, it is part of the classical received view that human beings are *guilty* for having the propensity to sin.) Yet, we *are* responsible for our actual sins, since we *choose to* sin and could have chosen not to sin on each occasion, even though, given the vast number of occasions, all of us actually sin every now and then. The propensity to sin that we have on each occasion does itself not *imply* that we sin on each occasion, only that we have a strong propensity that we need to resist, but that none of us actually resists on all occasions.

Note that it is very well compatible with this account that this propensity to sin is transmitted by sexual reproduction. However, it can also be the case that it is at least partially transmitted by all sorts of social structures, such as morally wrong institutions, social practices, and hermeneutical frameworks that do epistemic injustice to minorities (for more on this, see Fricker 2007; Medina 2013).

In this sense, sin has certain devastating cognitive consequences. It can be compared to the functioning of other faculties that are unreliable as a result of moral deficiency but that can be improved upon. Think, for instance, of our mechanisms that concern belief-formation about and caring for the social wellbeing of our fellow-humans. Surely, many of us do not care as much about their fellow citizens

[14] As a matter of fact, De Cruz and De Smedt come close to this second solution, but they deny that the *sensus divinitatis* is corrupted from the outset as a result of sin; instead, they argue that the *sensus divinitatis* is underspecified, potentially leading to both false and correct religious beliefs depending on the input (De Cruz and De Smedt 2012, 62). Thus, they seem to reject CCS.

as we should and there is even empirical research showing that we incorrectly assess ourselves much more positively than the average civilian in our country (e.g. Headey and Wearing 1988). Surely, these are belief-forming faculties or processes that we can improve upon in the course of our lives by investigating, caring, feeling empathy, and so on.

Now, the main reason for hesitating to accept this route is that mainstream orthodox Christian theology has, for theological reasons, most of the time wanted to stick to an historical Fall.[15] This second proposal is out of sync with large parts of historical Christianity and raises problems for the way the Christian narrative is told. For instance, on this picture sinning looks like a fate rather than going back to a choice. As a result, also soteriology will come to look differently. We will, therefore, in the following section explore another option.

11.7 (Un)Reliability and the Historical Presence of God

A final way in which one could defend that CCS goes well together with theories from CSR is the following. The doxastic mechanism, in producing all sorts of supernatural beliefs, was unreliable from the outset. However, God then isolated a community of humans in the sense of shielding them from death and suffering. God was present to them in such a direct and clear way that the mechanism became perfectly reliable. Thus, these humans came to know (the true) God and were enabled and called to live in his image, that is, in non-egoistic relationships with God, their neighbors, and their natural environment. Those humans, however, chose to turn away from God: they preferred to determine for themselves what is right and wrong, pretty much in the way the decision to choose for oneself what is right and what is wrong is impressively described by John Milton in his classical *Paradise Lost* (first published 1667). As a result of that sinful human act (or series of actions), God withdrew his presence from them, thus no longer being present to them *in that specific (close, intimate, etc.) way*. Consequently, the mechanism became unreliable. In this scenario, the historical event of the Fall is still crucial to the story since God withdrew his presence at that very moment.

An alternative way of thinking of this same scenario is that the mechanism that humans have when it comes to belief formation about gods is reliable – it is not broken, so to say – but that it is *not in the environment* for which it was meant if it is not functioning in the intimate presence of God. In that case, it produces all sorts of false beliefs. Thus, it would resemble a normal thermometer that is used on the moon: it is reliable, but just is not in the sort of environment for which it was meant. It is not so much that the mechanism is broken, but that it is not functioning in the proper circumstances, which is now a sinful environment where God is not present

[15] See from the Protestant and the Catholic side respectively: Smith 2017 and Van den Brink forthcoming; Levering 2017.

in that particular way. This is *not* another solution to our problem, but just another way of looking at the same solution—one in terms of environment rather than in terms of input by way of God's presence.

One may object with De Cruz and De Smedt (see Sect. 11.3 above, the second argument) that there is no historical evidence for an historical perfect state and an historical Fall; nor is there archeological evidence for an isolated community shielded from death and suffering. But there are at least two ways to reply to this problem. First, even if there is no historical evidence whatsoever, that gives us no reason to think that there was no such state: *absence of evidence* is not *evidence of absence*, unless we add some further (controversial) epistemic premises.

Second, orthodox believers may say that we *do* have at least some evidence for such an historical perfect state, namely evidence in the form of certain texts, especially Genesis 2 and 3. One may, of course, disagree, but then one would have to show that these texts are unreliable or that they have no historical implicature whatsoever. That is something De Cruz and De Smedt have not done—and it is not unreasonable to think that the burden of proof is on them, since they provided an argument in favor of an alleged tension between the Cognitive Consequences of Sin and the Noetic Effects of Evolution*. Moreover, it is not strange to think that at some point in time the first conscious morally evil act (however insignificant) for which the perpetrator could be held accountable (in however limited a way) must have taken place; nor is it counterintuitive to suppose that in the slipstream of this act many others started to behave similarly, and humanity got 'out of touch' with God, no longer recognizing his presence.

Moreover, this third solution does not suffer from any of the drawbacks linked up with the first two proposals. Therefore, we think this is the most elegant way to solve the problem identified by De Cruz and De Smedt.

11.8 Conclusion

It is time to draw a conclusion. We started this paper with a problem: some philosophers, in particular De Cruz and De Smedt, have argued that there is an incompatibility or at least a conflict between certain results of the cognitive science of religion and the idea that there are Cognitive Consequences of Sin. We have argued that it is *not* a good solution consider the evolutionary process *itself* as the result of sin, as William Dembski does, and as both Emil Brunner and Herman Bavinck have suggested in several places.

However, we also argued that there is no incompatibility, not even in a weak sense (the sense of rendering the Cognitive Consequences of Sin unlikely or the sense of there being some intellectual tension), between the Noetic Effects of Evolution and the idea that sin has serious cognitive consequences, including people forming all sorts of false beliefs about gods and people not believing in God.

The first reason is that all theories in the cognitive science of religion are still controversial. The second reason is that there are at least two solutions available. First, one might take it that there was no historical Fall, but that we all along have had the propensity to sin, that all of us actually sin (or *fall* into sin) and that, as a result of that, our *sensus divinitatis* malfunctions and has always malfunctioned. Second, one may think that there was an historical Fall, in response to which God withdrew his presence, so that the *sensus divinitatis* no longer has the right sort of input; we might also phrase this in another, more Plantingan way, viz. by saying that this mechanism is no longer functioning in an environment for which it was meant and is, therefore, no longer reliable, since it now functions in a sinful environment. Christians who prefer to stick closely to mainstream orthodox theology can choose the second rather than the first route, since it includes an historical Fall.

We conclude that there is no contradiction nor even a tension or conflict between the cognitive science of religion – and the idea of the Noetic Effects of Evolution in particular – on the one hand, and the view, pivotal to orthodox Christianity, that sin has certain devastating consequences for human cognition of God and the good, on the other.[16]

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Dr. Rik Peels is a Assistant Professor at the Vrije Universiteit Amsterdam (the Netherlands). His main research interests are the ethics of belief, ignorance, scientism, and various issues in the philosophy of religion. He published about these topics in journals such as *American Philosophical Quarterly*, *Australasian Journal of Philosophy*, *Journal of Philosophy*, *Philosophical Quarterly*, *Philosophical Studies*, *Philosophy and Phenomenological Research*, and *Synthese*. He is the author of *Responsible Belief: A Theory in Ethics and Epistemology* (New York: Oxford University Press, 2017), editor of *Perspectives on Ignorance from Moral and Social Philosophy* (London: Routledge, 2017), and coeditor of *The Epistemic Dimensions of Ignorance* (Cambridge: Cambridge University Press, 2016) and *Scientism: Prospects and Problems* (New York: Oxford University Press, 2018).

Dr. Hans van Eyghen, MA finished his Ph.D. thesis *Arguing from Cognitive Science of Religion. Cognitive Science of Religion and its Epistemic Implications* at the Vrije Universiteit Amsterdam (June 2018).

Prof. Dr. Gijsbert van den Brink holds the University Research Chair for Theology and Science at the Vrije Universiteit Amsterdam. His current research focuses on the impact of evolutionary theory (including theories of cultural evolution) on theological doctrines and, secondly, on theology as an academic discipline. He published in journals such as *International Journal for the Philosophy of Religion*, *International Journal of Systematic Theology*, *Neue Zeitschrift für Systematische Theologie und Religionsphilophie*, *Philo*, and *Ars Disputandi*. He is the author of *Almighty God. A Study of the Doctrine of Divine Omnipotence* (Kampen 1996[2]), *Oriëntatie in de Filosofie* (Zoetermeer 2000), *Philosophy of Science for Theologians* (Frankfurt 2009), *Christian Dogmatics* (coauthored with Cornelis van der Kooi; Grand Rapids 2017), and *Reformed Theology & Evolutionary Theory* (Grand Rapids forthcoming).